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Adduct formation of Bis(N-diisopropoxythiophosphorylthiobenzamido)nickel(II) with Pyridine

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Abstract

Thermodynamic parameters for the equilibria of adduct formation between bis(N-diisopropoxythiophosphorylthiobenzamido)nickel(II) with pyridine of the compositions NiL2Py and NiL2Py2 in dichloromethane were found by 31P NMR spectroscopy in the temperature range 258-308 K. Electron spin-nuclear spin coupling constants and electronic absorption spectra were obtained for the adducts. The electronic transitions were assigned to determine the local symmetry of the latter. The negative constants of Isotropic contact coupling for NiL2Py and NiL2Py2 were explained from the spin-polarization standpoint. The resulting constants and thermodynamic parameters of the equilibria of adduct formation, as well as the estimates for the rate constants of dissociation of the adducts are compared with published data for related systems and interpreted in terms of the donor-acceptor model of complex formation.